

Name _____
Date _____

Teacher _____
Section _____

Geometry Unit 14: Composite Figures 2009-2010

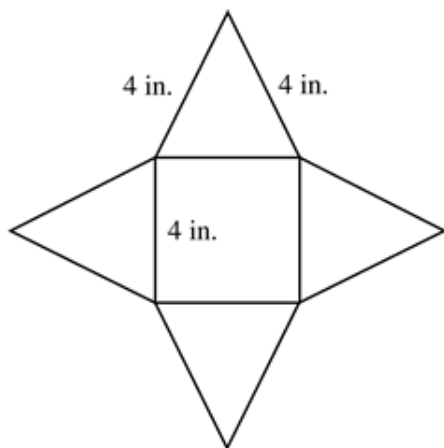
Instructions: For each multiple choice item, select the best response.

For questions that are not multiple choice, show your work and/or justify your response.



1.

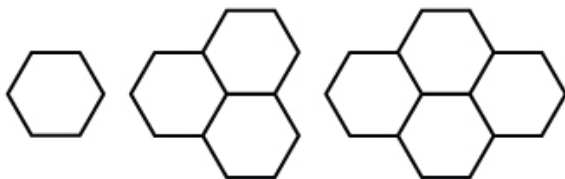
What is the area of the figure below?



- A. 43.7 square inches
- B. 22.9 square inches
- C. 32 square inches
- D. 48 square inches

2.

The figure below shows the first three figures of a pattern created with regular hexagons with a side measure of 1 unit.



If the pattern continues, what is the perimeter of the 5th figure in the pattern?

- A. 18 units
- B. 20 units
- C. 22 units
- D. 28 units

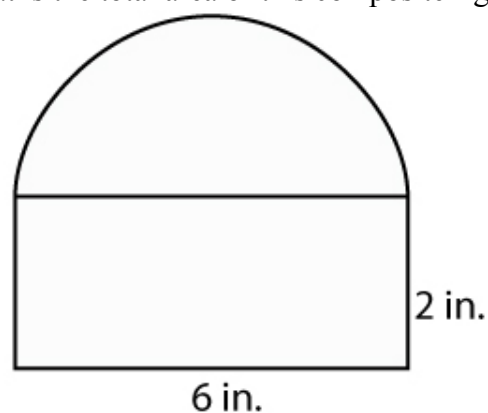
3.

Brad noticed that the pizza is shaped like a circle with a diameter of 12 inches. If the pizza is placed in a box shaped like a square whose sides have a length of 12 inches, what percent of the area of the bottom of the box is covered with the pizza?

- A. 90%
- B. 50%
- C. 26.2%
- D. 78.5 %

4.

What is the total area of this composite figure?



- A. $(12 + 4.5\pi)$ square inches
- B. $(12 + 3\pi)$ square inches
- C. $(12 + 6\pi)$ square inches
- D. $(12 + 12\pi)$ square inches

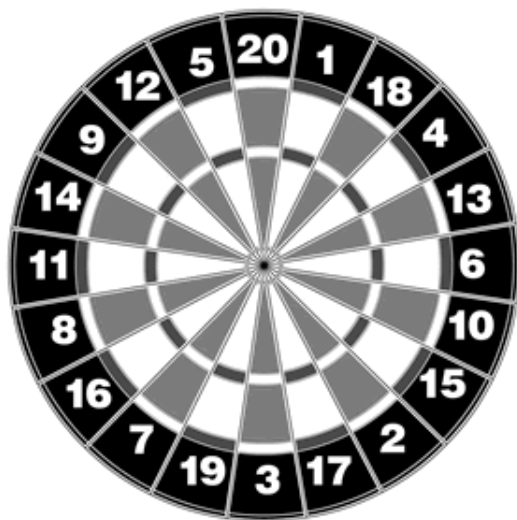
5.

What is the effect on the area of a rectangle if the length is doubled?

- A. The area would be the square of the area of the original rectangle.
- B. The area would be half the area of the original rectangle.
- C. The area would be two times the area of the original rectangle.
- D. The area would be four times the area of the original rectangle.

6.

Ted is designing his own dartboard. He started by cutting a piece of wood into a circle with a diameter of 14 inches. Next he divided the circle into congruent sectors of 18° each.

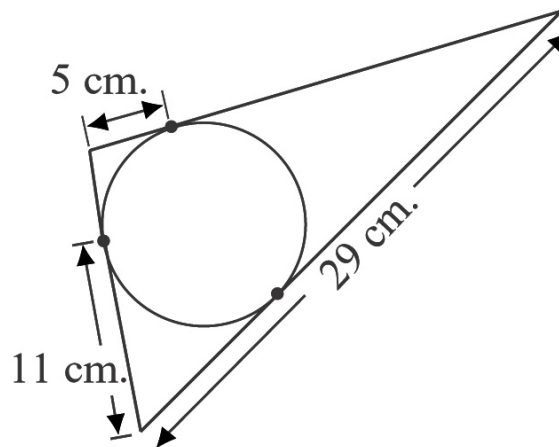


Which is the closest to the area, in square inches, of one sector of Ted's dartboard?
(Use $\pi = 3.14$.)

- A. 7.7
- B. 30.8
- C. 44.0
- D. 153.9

7.

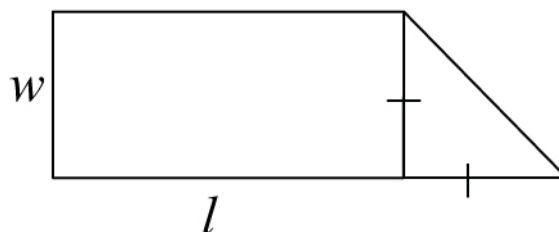
Find the perimeter of the triangle circumscribed about the circle below.



- A. 45 cm.
- B. 50 cm.
- C. 63 cm.
- D. 68 cm.

8.

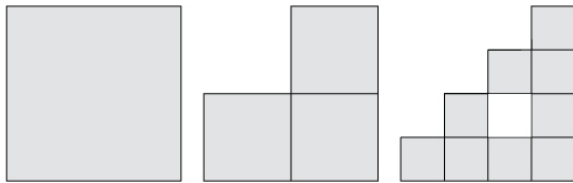
Determine the equation that can be used to calculate the total area of the composite figure below.



- A. $A = w + 2l + w^2$
- B. $A = 2l + 2w + w\sqrt{2}$
- C. $A = lw + \frac{1}{2}w^2$
- D. $A = lw + w^2$

9.

The first three stages of a fractal are shown below.

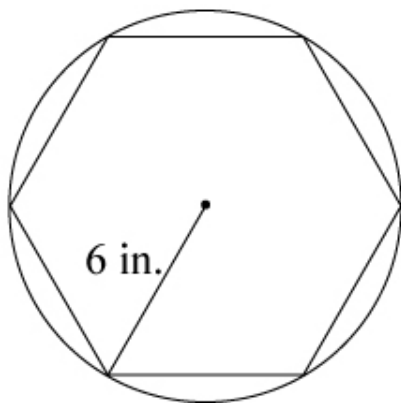


In each stage after the first, each square is divided into 4 squares, then the top left square is removed. If the pattern continues, how many shaded squares will be in the n th stage?

- A. $3n$
- B. n^3
- C. 3^n
- D. $3^{(n-1)}$

10.

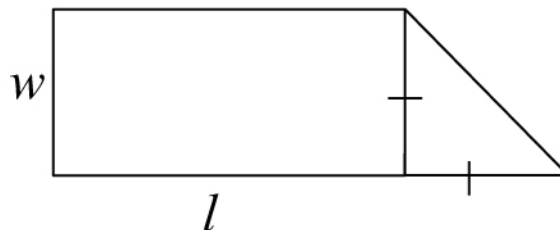
A regular hexagon is to be cut out of a circular piece of paper that has a radius of 6 inches. Approximately how many square centimeters of paper will be left over as scraps?



- A. 98.1 square centimeters
- B. 105.2 square centimeters
- C. 117.4 square centimeters
- D. 126.5 square centimeters

11.

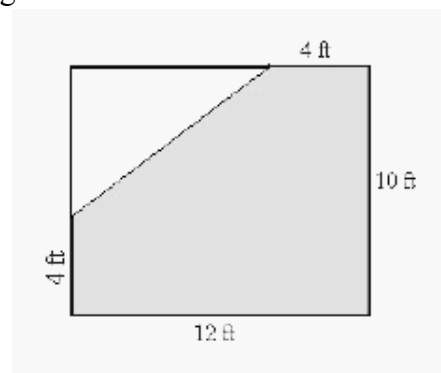
Determine the equation that can be used to calculate the perimeter of the composite figure below.



- A. $P = w + 2l + w^2$
- B. $P = 2l + 2w + w\sqrt{2}$
- C. $P = lw + \frac{1}{2}w^2$
- D. $P = lw + w^2$

12.

Jose cut the corner off of a large rectangular board. What remained is the shaded portion of the figure shown below.



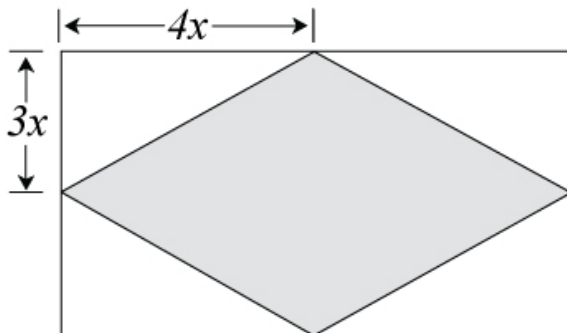
What is the area of the shaded portion of the board?

13.

Joshua wants to build a wooden box for storing his tools. He drew a net of his design to determine the amount of wood needed. The area of the net design was 0.3 square feet. If the actual wooden box will have dimensions 5 times that of the net, how many square feet of wood will Joshua need?

14.

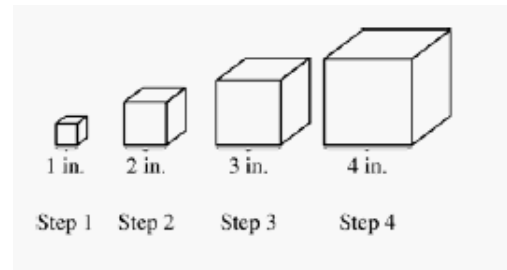
In the diagram below, each vertex of the shaded figure intersects the midpoint of each side of the rectangle.



Write an expression to determine the area of the shaded figure. (Do not solve, just show the algebraic expression.)

15.

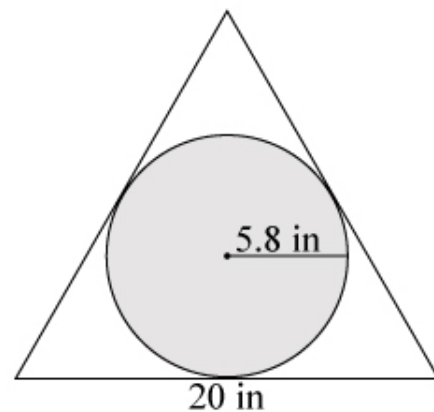
The steps below show a cube's sides increasing in length by one inch.



If the pattern continues, how many times greater is the surface area of the cube in step 7 than the cube in step 1?

16.

Suppose a dart is equally likely to hit any point on a board shaped like an equilateral triangle with a side of 20 inches. What is the probability that it will hit in the shaded circle?



Answer Key

#	Item ID	Key	TEKS	Stimulus
1	M0G3023090	A	G.8A	-
2	MG1092500D	C	G.5B	-
3	MG1092506D	D	G.8A	-
4	MG1092508D	A	G.8A	-
5	MG1092512D	C	G.11D	-
6	M0G3044903	A	G.8B	-
7	MG1060760RX	D	G.9C	-
8	MG1092494D	C	G.4A	-
9	MG1150963D	D	G.5B	-
10	MG1150979D	D	G.8F	-
11	M0G3022291	B	G.4A	-
12	MG1092510D	96 square feet	G.8A	-
13	MG1092514D	7.5 square feet	G.11D	-
14	MG1092498D	$48x^2 - 24x^2$	G.5A	-
15	MG1092502D	49	G.5B	-
16	MG1150981D	.61 or 61%	G.8E	-